

REMARKS/ARGUMENTS

Claims 43-59 are active. Minor revisions have been made to the claims as suggested by the Examiner. Claims 43, 45, 46, 48 and 49 have been revised to refer to “w/w% based on dry weight”; and claims 50-51 have been revised to include the phrase “in said inulin”. Claim 50 has been revised to add the indefinite article “a”. New claims 54-59 track the limitations in claims 43-53. Accordingly, the Applicants do not believe that any new matter has been introduced or that any new issues would be raised by these revisions.

Restriction/Election

The Applicants previously elected with traverse **Group VI**, claims 30-33, directed to a process for purifying DFA III solution. Claims 1, 4-6, 13-26, 29 and 35-42 were withdrawn from consideration. The requirement has been made FINAL. The Applicants respectfully request that any claims that cover subject matter encompassed by the nonelected groups, which depend from or otherwise include all the limitations of an allowed elected claim, be rejoined upon an indication of allowability for the elected claim, see MPEP 821.04.

Objections—Claims

Claims 43 and 50 were objected to for using particular terminology. The Applicants believe these objections are now moot in view of the amendments above. Claim 43 has been revised to consistently refer to “w/w%” values. Claim 50 has been amended to add the indefinite article “a”.

Rejection—35 U.S.C. §112, second paragraph

Claims 43-53 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The Applicants respectfully request the withdrawal of this rejection in view of the amendments above and the remarks below.

Claim 43 employs the term “R-Bx” which is disclosed on page 9 of the specification (eighth line from bottom). The meaning of this term would be immediately apparent to one of skill in the art as evidenced by the previously attached reference as well as a cursory internet search for the term “R-Bx” which is used in numerous patents and other documents to refer to refractometric Brix.

As previously explained, R-Bx refers to Brix as calculated using a refractometer and not by the specific gravity method. The method of measuring Brix must be specified since the two methods yield slightly different results due to measurement of the dissolved sugar content by the refractometric method and measurement of all dissolved solids by the specific gravity method, see <http://en.wikipedia.org/wiki/Brix> (attached). Claims 50-51 which both employ the phrase “polymerization degree of fructose” has been amended as suggested by the Examiner. Accordingly, this rejection may now be withdrawn.

Rejection—35 U.S.C. §103(a)

Claims 43, 45, and 47-53 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka, JP 49-117688 (English abstract, “AP” or English translation “N”) or Uchiyama, U.S. Patent No. 5,057,418, or Tomita, “N” English abstract of JP 03-259090; and in view of Armarego, Purif. Lab. Chem. 4<sup>th</sup> ed., Ch. 1, pages 1-3. The Applicant respectfully traverse this *prima facie* rejection because the prior art does not suggest or provide a reasonable expectation of success for the present invention.

Tanaka, Uchiyama, Tomita, and Armarego do not disclose or suggest contacting a DFA III (difructose dianhydride III<sup>1</sup>) containing solution having a purity of less than 70 w/w % with activated carbon particles in the range of 15-200 microns added in an amount of 5 w/w% or less.

Tanaka describes a method for manufacturing difructose dianhydride III (“DFA III”) by extraction of burdock root (bottom of page 6 of the English translation), microbial treatment, and subsequent adsorption of a resulting extract on “an active carbon column” (page 7, line 16) and elution using an aqueous ethanol solution (see also Practical Example 2 on page 8 in which Jerusalem artichoke is extracted). Tanaka employs the activated carbon column to remove DFA III from the treated extract, wash it, and then concentrate it by eluting the DFA III from the column. The Tanaka process is similar to the prior art process described at the bottom of page 7 of the specification in which “impurities such as pigments are non-selectively adsorbed once on active carbon”. Tanaka does not disclose contacting a DFA III solution having a purity of at least 60 w/w% and an R-Bx of 10 or more with active carbon particles. On the other hand, the process of the invention removes non-DFA III impurities by contacting them with active carbon particles, see the top of page 8 of the specification. The prior art DFA III contains these impurities since it has not been treated with particles of active carbon.

Uchiyama also describes a process for preparing DFA III involving similar steps of binding crude DFA III to active carbon and then eluting it with aqueous ethanol (col. 6, lines 29-31). Like Tanaka, it does not disclose or suggest contacting a DFA III solution having a purity of at least 60 w/w% and an R-Bx of 10 or more with active carbon particles.

Tomita (English abstract) describes treatment of a microbially-treated inulin solution by filtration, concentration, extraction and concentration, but also does not disclose or

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<sup>1</sup> DFA III is a practically indigestible disaccharide having a solubility of approximately 90-95% of sucrose and a sweetness of about 52% that of sucrose, specification, bottom of page 1.

suggest contacting a DFA III solution having a purity of at least 60 w/w% and an R-Bx of 10 or more with active carbon particles.

Armarego is a general reference which teaches “common physical techniques used in purification”. The rejection cites page 12 which indicates that during recrystallization procedures:

If the solution contains extraneous coloured material like to contaminate the crystals, this can often be removed by adding some activated charcoal (decolorizing carbon) to the hot, but not boiling, solution which is then shaken frequently for several minutes before being filtered.

Significantly, Armarego is silent with respect to the effects of activated charcoal addition on DFA III and the rejection does not indicate whether the other prior art documents indicated DFA III preparations contain extraneous coloured material. Moreover, none of the cited prior art provides a reasonable expectation of success that the addition of active carbon particles would, in fact, either remove extraneous colored material from DFA III or other contaminants, such as those associated with undesirable smell of conventional DFA III preparations (specification, page 3, lines 6 *ff.*).

Furthermore, as alluded to above, the prior art teaches away from the invention, because the prior art chromatography methods pass DFA III through activated carbon columns which do not remove contaminants associated with the undesirable smell (specification, page 2, last paragraph, *ff.*). Based on the prior art cited in the rejection, one of ordinary skill in the art at the time of invention would have assumed that selective removal of such contaminants using activated carbon particles would not have been possible. The rejection does not indicate in the face of such prior art teachings, why one of ordinary skill in the art would have been motivated to use active carbon particles to further purify DFA III. On the other hand, the inventors have discovered that addition of a small amount (5 w/w% or less) of active carbon particles selectively remove undesirable contaminants from a DFA III solution. There is no suggestion or reasonable expectation of success for this selective

removal of contaminants, such as odiferous contaminants, in the prior art. Accordingly, the Applicants respectfully request that this rejection be withdrawn.

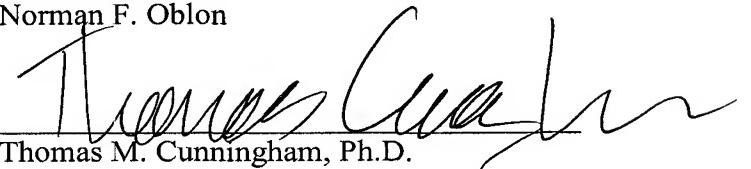
Conclusion

In view of the amendments and remarks above, the Applicants respectfully submit that this application is now in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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